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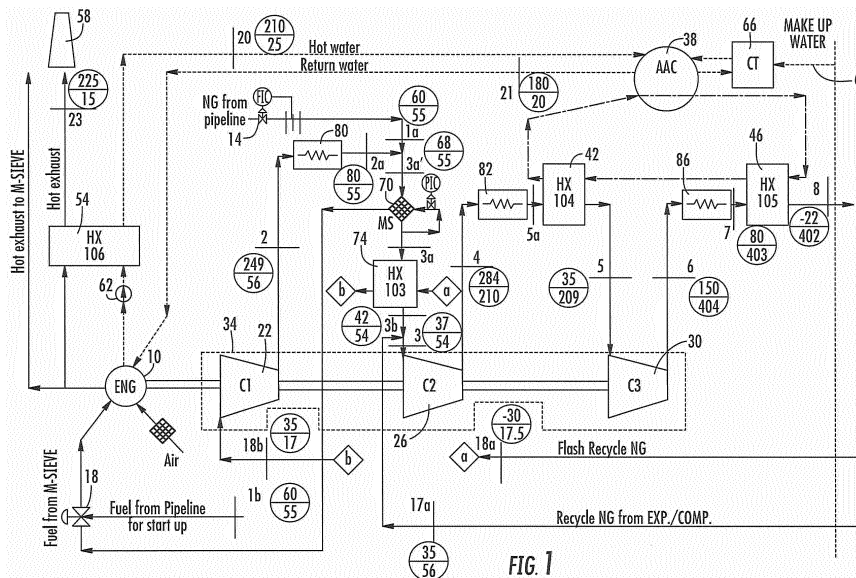
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(62) Document number(s) of the earlier application(s) in accordance with Art. 76 EPC:
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(54) **METHOD AND SYSTEM FOR THE SMALL-SCALE PRODUCTION OF LIQUIFIED NATURAL GAS (LNG) AND COLD COMPRESSED GAS (CCNG) FROM LOW-PRESSURE NATURAL GAS**

(57) A system for the production of LNG from low-pressure feed gas sources, at small production scales and at lower energy input costs. A system for the small-scale production of cold compressed natural gas (CCNG). A method of dispensing natural gas from stored CCNG, comprising: dispensing CCNG from a CCNG storage tank; pumping the CCNG by a cryogenic liquid pump to a pressure suitable for compressed natural gas dispensing and storage in on-vehicle compressed natu-

ral gas storage tanks; recovering cold from the CCNG by heat exchange with natural gas feeding the natural gas production plant to replace dispensed product. A system for the storage, transport, and dispensing of natural gas, comprising: means for handling natural gas in a CC-NG state where the natural gas is a non-liquid, but is dense-enough to allow for pumping to pressure by a cryogenic liquid pump.





PARTIAL EUROPEAN SEARCH REPORT

Application Number

under Rule 62a and/or 63 of the European Patent Convention.
This report shall be considered, for the purposes of subsequent proceedings, as the European search report

EP 15 19 3552

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DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 2003/177785 A1 (KIMBLE E LAWRENCE [US] ET AL) 25 September 2003 (2003-09-25) * paragraphs [0023], [0025], [0036], [0040]; figure 4 *	1-11	INV. F25J1/02 F25J1/00
X	US 2007/186563 A1 (VANDOR DAVID [US] ET AL) 16 August 2007 (2007-08-16) * page 2, paragraph 0017 - page 3, paragraph 0021; figures 1, 2,3 *	1	ADD. F17C1/00
X	US 2006/254287 A1 (GREENBERG RALPH [US] ET AL) 16 November 2006 (2006-11-16) * page 3, paragraph 0031 - page 3, paragraph 0031; figures 1,4 * * page 6, paragraph 0061 - page 6, paragraph 0061 *	1,10,11	
			TECHNICAL FIELDS SEARCHED (IPC)
			F25J F17C
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC so that only a partial search (R.62a, 63) has been carried out.			
Claims searched completely :			
Claims searched incompletely :			
Claims not searched :			
Reason for the limitation of the search: see sheet C			
Place of search		Date of completion of the search	Examiner
Munich		9 November 2016	Schopfer, Georg
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		& : member of the same patent family, corresponding document	

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**INCOMPLETE SEARCH
SHEET C**

Application Number
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Claim(s) completely searchable:
1-11

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Claim(s) not searched:
12, 13

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Reason for the limitation of the search:

The search has been restricted to the subject-matter indicated by the applicant in his letter of 02.09.2016 filed in reply to the invitation pursuant to Rule 62a(1) and/or Rule 63(1) EPC.

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**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

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5 This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
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09-11-2016

10	Patent document cited in search report	Publication date	Patent family member(s)	Publication date
15	US 2003177785 A1	25-09-2003	AU 2003214242 A1 EP 1490639 A1 US 2003177785 A1 WO 03081154 A1	08-10-2003 29-12-2004 25-09-2003 02-10-2003
15	----- US 2007186563 A1	16-08-2007	NONE	-----
20	US 2006254287 A1	16-11-2006	NONE	-----
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82